

IN THE CLAIMS

Please amend the claims as follows:

1. – 7. (Cancelled)

8. (Previously Presented) A method of generating a high-level vacuum comprising:
evacuating a chamber having a substantially-pure gas therein;
freezing residual gas in the chamber to generate a high-level vacuum within the chamber;
purging impurities from the chamber with the gas by filling the chamber with the gas;
repeating the filling and the evacuating to reduce impurities from the chamber and to
obtain a high concentration of the gas within the chamber; and
after filling the chamber with the gas, evacuating the chamber prior to freezing to
generate a medium-level vacuum,
wherein the substantially-pure gas has an impurity-level of less than approximately 100
parts per million (PPM), and
wherein the gas is carbon-dioxide and has a freezing point of above approximately 100
degrees Kelvin at the medium-level vacuum.

9. (Currently Amended) The method of claim 8 ~~A method of generating a high-level vacuum comprising:~~
~~evacuating a chamber having a substantially-pure gas therein;~~
~~freezing residual gas in the chamber to generate a high-level vacuum within the chamber;~~
~~purging impurities from the chamber with the gas by filling the chamber with the gas;~~
~~repeating the filling and the evacuating to reduce impurities from the chamber and to~~
~~obtain a high concentration of the gas within the chamber; and~~
~~after filling the chamber with the gas, evacuating the chamber prior to freezing to~~
~~generate a medium-level vacuum,~~
wherein the chamber comprises a magnet chamber having a magnet therein, and wherein
freezing comprises reducing the temperature within the chamber by cooling the magnet to at or
below a freezing point of the gas at the medium-level vacuum.

10. (Original) The method of claim 9 further comprising after freezing the gas, further cooling the magnet to a cryogenic temperature,

wherein the vacuum within the chamber is to provide insulation for the cryogenically-cooled magnet.

11. – 19. (Cancelled)

20. (Previously Presented) A vacuum insulation system comprising:

a chamber having a substantially-pure gas therein at less than atmospheric pressure;

a cooling element to freeze residual gas in the chamber to generate a high-level vacuum within the chamber; and

a gas cylinder having the substantially-pure gas therein at a higher-than atmospheric pressure, the gas cylinder to at least slightly pressurize the chamber with the gas prior to the vacuum pump evacuating the chamber before freezing,

wherein the substantially-pure gas has an impurity-level of less than approximately 100 parts per million (PPM), and

wherein the gas is carbon-dioxide and has a freezing point of above approximately 100 degrees Kelvin at the medium-level vacuum.

21. (Currently Amended) The system of claim 20 14 further comprising a magnet within the chamber, and wherein the cooling element is to reduce a temperature within the chamber by cooling the magnet to at or below a freezing point of the gas at the medium-level vacuum.

22. (Original) The system of claim 21 wherein after freezing the gas, the cooling element is to further cool the magnet to a cryogenic temperature, and wherein the high-level vacuum within the chamber is to provide insulation for the cryogenically-cooled magnet.

23. – 25. (Cancelled)

26. (Previously Presented) The system of claim 21 wherein the magnet is an electromagnet cooled to a superconducting temperature to generate a high-level magnetic field for a radar tube in a radar system.

27. (Currently Amended) A vacuum insulation system comprising:
a chamber having a substantially-pure gas therein at less than atmospheric pressure; and
a cooling element to freeze residual gas in the chamber to generate a high-level vacuum within the chamber, the chamber having essentially no other gasses therein other than the substantially-pure gas;
a medium-level vacuum pump to reduce the pressure within the chamber to a medium-level vacuum before the cooling element operates to freeze the gas; and
a magnet within the chamber,
wherein the cooling element is to reduce a temperature within the chamber by cooling the magnet to at or below a freezing point of the gas at the medium-level vacuum, and
~~The system of claim 21 wherein the magnet is a superconducting magnet in a magnetic-resonance-interference (MRI) diagnostic imaging system.~~

28. (Cancelled)

29. (Previously Presented) A vacuum insulation system comprising:
a chamber having a substantially-pure gas therein at less than atmospheric pressure; and
a cooling element to freeze residual gas in the chamber to generate a high-level vacuum within the chamber,
wherein the chamber is to insulate an infrared seeker head of a missile, the chamber being provided with the substantially-pure gas therein,
wherein the system further comprises a cooling liquid to freeze the substantially-pure gas within the chamber after launch of the missile to generate in flight the high-level vacuum within the chamber, the cooling liquid to further cool the seeker head to at least a near-cryogenic temperature, and

wherein the cooling liquid comprises liquid argon, and wherein the substantially-pure gas is carbon-dioxide, and wherein the chamber is initially provided with the medium-level vacuum.